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GEOGRAPHICAL NOTES FROM THE YEAR-BOOK OF THE DEPARTMENT OF AGRICULTURE FOR 1900.

BY

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This is a volume of 888 pages, and contains several papers of importance, not only to the farmer, but to all who are interested in the development of our national domain.

Three points may be specially selected from the report of Secretary Wilson, with which the volume begins. These relate to Forestry, Roads, and Irrigation. In regard to the first, Secretary Wilson says that public interest is growing with unprecedented rapidity, and that the calls for advice from planters and lumbermen far out-run the ability of the Division of Forestry to meet them. Similar is the case with the Office of Public Road Inquiries. More sample roads were built in 1900 than in any previous year, and the interest is widespread. Also, a report now in preparation on eight streams of California is believed to be

the largest and most comprehensive inquiry regarding irrigation laws, customs, and conditions which has been undertaken in this country.

Reference will now be made to some of the most important essays of the Year-Book.

FORESTRY.

Two essays deal with this subject. One discusses forest extension in the Middle West. The object is to show that planting will be profitable, and to suggest plans of procedure. It is stated that a ten-year plantation of catalpa in Kansas now shows a net value of \$197.55 per acre. Great destruction of the native trees has taken place in the region. The more extensive remaining forests are in Arkansas; but these are rapidly disappearing. There is growing call for fence posts, railroad ties, and telegraph poles, and they are even now often worth more than it costs to grow them. The telegraph lines of the United States require 600,000 poles annually, and 90,000,000 railroad ties are needed each year for renewal. There is also needed lumber for furniture, implements, and vehicles, and 500,000 acres annually planted in the Middle West would not meet the needs. The Division of Forestry stands ready to examine land,

and to plan and oversee the work without charge to the planter. This is done through occasional visits of a forestry officer.

The other paper is devoted to practical forestry in the Southern Appalachians. There is already a serious reduction of the timber by improvident methods. Here are important problems for Western North Carolina and Eastern Tennessee, where there are one hundred kinds of native trees. The losses are due to leaving to rot trees of unsound base, to poor judgment in sawing, to high stumps, and to careless felling, causing lodging and crushing of saplings. There are two classes of forest. The first has suffered from cutting, from fires, and from grazing. Such forests need removal of worthless kinds, as on the Biltmore estates, where 3,000 cords of firewood are cut each year, to the improvement of the woodlands. Cattle should be kept out, and fires checked. The second head includes the higher mountain timber, in which diseased or overripe trees should be removed; enough trees should be left for density, for seed, and to provide for repeated crops of the best timbers.

In an appendix it appears that thirteen States have offices for forest work. There are twenty-one forestry associations, of which four are in California. We have three schools of forestry: the Yale Forestry School, giving a graduate course of two years; the New York State College of Forestry at Cornell University, with a four-year course and 30,000 acres of State forest as a demonstration area; and the Biltmore School of Forestry in North Carolina. Forty-eight other institutions offer more or less instruction in the subject.

ROADS AND ROAD MAKING.

Here we find two essays. One sets forth the best ways of making mountain roads. Mineral deposits have led to the making of all such roads west of the Missouri River. Everywhere the loss from the use of bad roads would in five years construct good highways for the carting of ore, fuel, provisions, and timber. There is an interesting account of the road grades suited to various traffic. A four per cent. road (4 feet in 100) is the maximum for pleasure driving. Twelve per cent. is the highest permissible grade for freight, and eight per cent. is much better, and usually practicable. A fifty per cent. greater load can be hauled by a team on an eight per cent. than on a twelve per cent. incline. The rest of the paper is given to the more technical matters of construction.

Selection of Material for Macadam Roads is the theme of a paper by Mr. L. W. Page, Expert in Charge of Road Material Laboratory—

an official title that is suggestive of great recent progress in this field. Credit is given to bicycle organizations, to the adoption of horseless vehicles, and to the awakening of our farmers to the value of easy transportation. Hardness for resisting wear, toughness for resisting fracture, and the binding or cementing quality are shown to be the needed properties of road rock, and these must be adapted to the bulk and kind of traffic. Urban, suburban, highway, and country road traffic are shown to vary in important ways in the strain put on roads, and thus the need of expert work appears in this as in other departments of practical science. Laboratory tests of road-material have been made in France for thirty years, and their value is demonstrated. In this country such laboratories are organized in Johns Hopkins University, Columbia University, Harvard University, Cornell University, the University of California, and the Wisconsin Geological Survey. The laboratory in the Department of Agriculture will test, free of charge, road material for any resident of the United States. Before a report is made the laboratory requires a record of the traffic on the roads to be maintained, and expert advice is then given. The National Good Roads Association has its headquarters at 928-929 Marquette Building, Chicago.

INTRODUCTION OF FOREIGN FRUITS AND GRAINS.

Four papers are mainly occupied with this theme. One relates to Smyrna Fig Culture in the United States. Elaborate experiments have sought to secure the fertilizing of these trees by means of a fig insect imported from the East. It is a promising industry for the interior valleys of California, also for the fruit-growing parts of Arizona, New Mexico, and Texas. Experiment stations in Louisiana and further east are urged to give the subject their attention, the Smyrna fig being vastly more valuable in the market than the California fig. The aim is to supply the place of importations, now amounting to several hundred thousand dollars per year.

We have next the date palm and its culture. Yielding in importance only to the Smyrna fig and the Zante currant is the importation of this fruit. The requirements are: plenty of water for the roots, and a hot, dry atmosphere for the leaves, and winters not too severe. The tree will thrive as in Florida, where the summer is not dry enough nor hot enough to mature the fruit. It is the chief product of the Sahara region, and it is grown commercially at a single point in Southeastern Spain. There have been sundry attempts to naturalize the date palm in this country from the days

of the early Spanish missionaries in the South West. These led to the importation, in 1900, of a quantity of shoots of the best dates of the Algerian Sahara. Experiment is in progress with most of them at the University of Arizona, a few being sent to the University of California. Temperatures below 20° F. are likely to be injurious or fatal, and the fruit will not ripen unless the mean temperature goes above 80° for a month in the summer, with a mean of 70° from May to October. The soil, on the other hand, must be moist, but for arid regions the plant has the great advantage of thriving on very alkaline soils. Orchards come to bearing in six to eight years. A single tree in Arizona, eight years from the seed, bore 400 pounds of fruit in a season. The valley of the Colorado River, the Colorado Desert of Southeastern California, and the central valley of California are the most favourable regions for this fruit. The Colorado Desert is deemed the best date region in the New World. It would be a fact of high interest if this region of fearful heat and great aridity could be so watered as to grow rich with this Old World fruit. The Arizona region is discussed at some length, and the prospect of growing our own supply of dates is held to be good.

A third article discusses successful wheat-growing in semi-arid districts. The author notes the fact that in certain parts of Kansas emigrants from the cold and dry parts of Russia have reared crops when others failed. With a rainfall under thirteen inches, the lower Volga district is one of the chief wheat regions of Russia. Such precipitation means aridity, being several inches less than in the semi-arid belt of the Great Plains.

Increase of the crop in this region is to be gained by selection of hardy varieties and by proper methods of culture. The hardiest sorts of Russian wheat are likely to succeed in the West, especially those called the maccaroni wheats; and to this end much experimental proof has now been gained. The essential in culture is to conserve the moisture. By such care, and by rigid selection of the hardiest plants, the author believes that our winter wheat area "may be extended northward almost indefinitely."

A fourth paper of great value is devoted to commercial plant introduction in general. The present efforts in this direction derive additional worth from the consideration that our native plants, some grasses, and forest trees have played an unimportant rôle in the agricultural development of the land. The Department seeks chiefly to secure adequate experimentation, to prevent introduction of plant diseases and noxious insects, and thus to promote economy

and safety. A single important case of recent years is the importation of Kafir corn, of which 600,000 acres are now planted in the single State of Kansas.

Another recent importation is the Kiushu rice, from Japan, now grown in Louisiana and Texas, and very superior, in that it does not deteriorate, and is so hard that it does not break in milling. Many other illustrations of recent importations of great value will be found by the reader of the article.

FREE DELIVERY OF RURAL MAILS.

This subject is given place as of special interest to the farmer. The growth of the system has been rapid, from 44 routes in 1897, 128 in 1898, and 634 on Nov. 1, 1899. By June 30, 1900, the number was 1,214; and Nov. 1, 1900, 2,551 routes were being served. It is shown that the growth of the system will not be a burden upon the postal service, but will even become a source of profit. The history of the movement is outlined, its advantages are discussed, and the personal verdicts of a number of farmers as to its operation are given. Prompt receipt of market and weather reports, closer contact with the world, with greater intelligence and interest in rural life, are the chief advantages set forth.